

**Louisiana Office of Public Health
Website Development Project Report
October 2000**

Final Report

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Executive summary:

Offered the opportunity to design a test OPH website, the staff in Policy, Planning and Evaluation (PPE) established a systematic research and design plan and developed a set of “next steps” to implement an OPH website. The results of the planning is an OPH prototype website grounded in the preferences of clients of the website.

Methods:

The research for the OPH prototype website was done in three stages, and informed by a broad review of books and articles on technology and methods.

- **Stage one: Freelists with formative interviews** – A total of 13 people, seven of whom are OPH employees, were interviewed over the telephone between the dates of July 27 and August 11, 2000. The primary objective of the research was to brainstorm a freelist of what topics to include on the website and identify a set of web-use preferences.
- **Stage two: Pile sorts** - The freelists were used to make 26 cards that 12 respondents, six of whom were OPH professional level employees, were asked to organize. The interviews were face-to-face and conducted between September 11 - 16, 2000. The primary objective of this stage was to develop a plot for how people organize public health-related information; this was then used to organize information on the website.
- **Stage three: Usability testing with comments about esthetics** – Users of the state public health website were asked to perform three tasks. The three tasks were chosen from a frequency list of most common webpage tasks from the formative interviews. Subjects were asked to talk aloud about their thought processes as they tried to execute each task. The objective of this phase of research was to identify the manner in which people try to use the test webpage to do common tasks.

Stage one: Formative interview results:

A brief summary of the preferences people had about the OPH website:

- **Issue driven** – People want to come into the site by an issue not via organizational paths.
- **Transparent** – Once the information on an issue is exhausted, people want to be able to leave the site on their way to more information about that issue.
- **Fast** – People always want the site to load quickly and once on the site they want to get to information quickly.
- **Has functionality** – People want to be able to do something on the website.
- **Had a central portal** – People want a single page that allows them to reach information and then return to it to find something more.
- **Meaningful** – People want data that is at the parish level and state data that has comparison points.
- **Dense** – The site should not be a fluff or PR piece but have educational value.
- **Easy** – The site has to be easy to use; data should be easy to understand and uncomplicated.
- **Circular** – People want to be able to reach the same information a number of ways.

Stage two: Pile sorting results:

The value of the pile sorts is twofold: to represent the relationship of terms and to identify the dimensions with which people discriminate information. In the present case, respondents organized the proposed topics for the OPH website in terms of two dimensions: the spectrum of products of OPH and the timeliness of the terms.

- **Spectrum of the products:**

This dimension illustrates the spectrum of products of OPH. Beginning on one side of a continuum is the raw numbers and statistics. In the middle and moving to the other end are the services provided. On the far end of the continuum are the people and structures that make up the agency. There is a relationship based on inputs and outputs: the programs and staff inform the delivery of services which form the basis of the data; but, in return, the data and statistics complete the loop by informing the delivery of services, program development and staffing needs.

- **Timeliness of terms:**

Things at one end of the scale are considered extremely timely and thus constantly changing. The terms at the other end of the continuum are less timely, and only change occasionally. Consumers would expect to check back with the items on first end more frequently, whereas they would not expect the items at the second end to change with any frequency. Related to time, information found on the pages for outbreaks, and health alerts might change daily, or in some cases even hourly. The data and statistics and OPH contacts pages may change monthly, quarterly and yearly; the eligibility, fee schedule and clinical guidelines pages will require updating only once in a while.

Plotting the relationships of terms:

The clusters or grouping of terms represents terms that are related to each other in the minds of the respondents. The clustered terms, therefore, should be found on the same page, or within one link of each other, depending on their proximity. The names generated by respondents will then be used to name these relationships.

There were three levels of relationships identified:

- Primary Relationships: terms that should be found on the same page.
- Secondary Relationships: terms that should be cross-referenced to each other using links.
- Items Global to the Entire Site: the terms all terms respondents had a difficult time sorting into piles, such as a clickable map, keyword search, and external links, are all items that should be found throughout the entire site.

Stage three: Usability test results:

The usability test confirmed the need for circular linking in the OPH website. People think of a topic, such as the assigned tasks for the test, in a number of different ways. For instance, in the usability test, people tried to find a tobacco fact sheet through various means such as health alerts, current issues, hot topics, programs and services, data and statistics and Healthy People. All of these channels need to have a logical links to be able to reach a tobacco fact sheet. Additionally, the sensitivity of language was confirmed when respondents discussed their confusion over particular terms. In particular, respondents clicked on “health alerts” and “current issues” because tobacco was an urgent subject to them. For some people, the language “data and statistics” was synonymous to “fact sheets.” Usability testing is clearly a continuing activity for website development.

Next steps:

There are several steps that need to be considered in further development of the OPH website:

- Further development of the website work plan and timeline
- A directive from Madeline McAndrew's office
 - Name a webmaster
 - Identify program staff
 - Fiscal commitment to software
 - Invest in training
- Policy development for OPH in terms of website parameters
 - Flexibility in web template adherence
 - Review process
- Integrated information system development
 - Technical committee

Appendix

In-depth Results of the three stages of research

Methods:

The three stages research for the proposed OPH website:

- **Freelists with formative interviews** – A total of 13 people, seven of whom are OPH employees, were interviewed over the telephone between the dates of July 27 and August 11, 2000. The primary objective of the research was to elicit a brainstorm list of what topics to include on the website. In addition, this list would serve as the basis for the second stage of the research. A secondary objective was to identify Louisiana-specific information to highlight and the kinds of tasks that people do on a public health website. Those activities listed in interviews would inform the third stage, the usability testing. A useful, but unexpected, outcome of the first stage of questions was information about the attributes of website that people prefer.
- **File sorts with additional comments about site organization** - The freelists were used to make 26 cards that 12 respondents, six of whom were OPH professional-level employees, were asked to organize. The interviews were face-to-face and conducted between September 11 - 16, 2000. The primary objective of this stage was to develop a plot for how people organize public health-related information; this was then used to organize information on the website. A secondary objective of this phase of research was to find a hierarchy of pages that would be logical to a majority of the sites users. An unexpected outcome was rich information about how to link pages and what to post as sidebars.
- **Usability testing with comments about aesthetics** – Users of the state public health website were asked to perform three tasks. The three tasks were chosen from a frequency list of most common webpage tasks from the formative interviews. Subjects were asked to talk aloud their thought processes as they tried to execute each task. Observers took notes to record the verbal comments and each of the “clicks” that the subjects make. The objective of this phase of research was to find identify the manner in which people try to use the test webpage to do common tasks. A secondary objective was to find the common denominators in searching that should be replicated through out the website. Additionally, practical improvements and recommendations were offered.

Summary of formative interviews

A summary of the answers to questions provided a picture of what people want on a website:

- **Issue driven** – People want to come into the site by an issue. They don't want to navigate through the site by organizational paths but would prefer to hit pages about an issue linked one to another.
- **Transparent** – Once the information on an issue is exhausted, people want to be able to leave the site on their way to more information about that issue. They don't want the OPH website to be a dead end but rather a way to reach more information outside of the agency, including local resources.
- **Fast** – People always want the site to load quickly, but once on the site they want to be able to get to information quickly. They don't want the product that carries information buried by several layers.
- **Has functionality** – People want to be able to do something on the website. Several people mentioned that the OPH website could be a communication tool for groups outside of the agency. Some of the ways that the site could have functionality are: bulletin or message boards, scrolling alerts, query-able data sets or charts, searches or a calendar, just to name a few that were mentioned. One participant wished that OPH could use the web to help organizations keep in touch with the issues and each other.
- **Had a central portal** – People want a single page that allows them to reach information and then return to it to find something more. Some people called it a portal; some said a clickable map. In either case, it is a framework on a single page that leads to different information by having lots of levels of access in one format. A site map, although not mentioned, serves the same purpose.
- **Meaningful** – People want data that is at the parish level. One person mentioned census tract data and metropolitan statistical areas (MSA). People also want to compare information from state to state. Information needs to be meaningful. For some people it is meaningful when it is about an issue, for others information that is localized is more important. In a variety of ways, people asked for some context to interpret data.
- **Dense** – The site should not be a fluff or public relations piece but have educational value. The educational value should be tailored to different users – beginners to researchers.
- **Easy** – People commented that users generally are not technologically advanced about websites. The site has to be easy to use. It should be attractive but functional. Data should be easy to understand and uncomplicated.
- **Circular** – People want to be able to reach the same information a number of ways. They want to be able to reach other pages in the website without having to back out a number of layers.

Summary Results of Each Question in the formative:

What topics would you want to find on a state Public Health Site?

Topics mentioned	Percent who mentioned
• Statistics	53%
• Data	47%
• Services	41%
• OPH contacts	41%
• External links	29%
• Issues	29%
• Demographics	24%
• Organization chart	24%
• Clinical guidelines	18%
• Click-able map	18%
• Current news	18%
• Mortality	18%
• Programs	18%
• Emergency preparedness	18%
• Issue contacts	18%
• Morbidity	18%

The above table represents the topics mentioned most frequently by all respondents. These terms were used in the second phase of formative research for pile sorts. (See page 7 “In-depth Pile Sort Results.”)

Question: Is there anything specific to Louisiana that you believe that is important to emphasize on the website?

- **Comparisons** – People want to see how Louisiana ranks in comparison to other states. Specifically, people noted that they were interested in comparing HIV infection rates, literacy rates, rates of TB, cancer and other preventable diseases. They want to know the health status of state residents, with one participant singling out special attention on children. Another form of comparison that was mentioned was trends over time.
- **Hot topics for Louisiana** – Specifically, people mentioned a number of “hot-button” topics to emphasize about Louisiana: emergency or hurricane preparedness, seafood, obesity/nutrition, HIV/STD, alcohol consumption, vector-borne illnesses, environmental problems, injury and tobacco consumption.
- **Local information** – People want to be able to get to their local or regional data. Several people suggested posting information by metropolitan statistical areas or census tracts. Maps were a way to get to regional and parish data. People want demographic data for Louisiana and a “resources section” for local links.
- **Services** – Several people said that a complete list of all services, their location, days and times of operation and the eligibility requirements were important.

- **Context** - People want to see the interrelationships of education, economics and health on the Louisiana website. They also wanted a context for state data with interpretation of the data and links to program pages.
- **Diversity** - The Louisiana site needs to represent a diverse population, with racially diverse images and more than one language (Spanish was mentioned, but there could be some information in Vietnamese). They also suggested that the site be as non-governmental as possible – be personal. Clearly stated was a preference for information and not public relations – “Don’t use the website for glorification of the agency.”
- **Public health PR** – People think that the public in Louisiana is unaware of the importance of public health and the accomplishments that have been made. They want success stories and the value of public health emphasized.
- **OPH business** – Several people mentioned online reporting, downloading agency forms or employment information.
- **State government** – People want to track public health legislature on the website. They wanted a list of which services are legislatively mandated or have cooperative agreements.

What do you typically do on a state public health website?

Task mentioned
<ul style="list-style-type: none"> • <i>Research for information*</i> • Download • Reading information • <i>Look for policies (Civil Service, regulations, Legislature)*</i> • Contact people in the state system • Look for updates (new ideas) • Get data to use at the local level • Statistics (rates, risks of diseases) • <i>Look for services*</i> • Link to other sites (state, federal) • Get different ways to do needs and assets assessments • Compare LA to what other states are doing • Go to InfoLouisiana • Order items • Interactive data • Demographics • Non Public Health but related topics (economics) • Calendars
<i>* Tasks that were used in the usability test.</i>

How to present the data on the topics respondents want to see on the web:

- **Clear information** - State the problem clearly and make the information easy to find; don't use ambiguous language.
- **Context for data** – Give the big picture of what OPH is doing. Explain results and interpret data. Give information about collection and analysis methods.
- **Comparison** – Provide comparisons for state data and trends over time.
- **Easy to use** - Accessible data base, on-line and query-able database of OPH contacts. Make sure pages and data print easily. People should be able to cut and paste data or download into spreadsheets. Break things up by pages – with more targeted data.
- **Meaningful** - Be current with data, be able to break down information in different groups and display data in different ways so people with different needs could use the same information.
- **Complete** - Include emails and phone numbers of OPH contacts. Graphs should also have tables with the numbers that generated them.

In-depth Pile Sort Results:

Twelve respondents were asked to sort 26 terms into groups. The terms used represent the top 16 topics listed by respondents. Each of these had at least three people mention this term. Ten more terms were added due to their known importance to the agency and its web site based on services, activities and future directions of the organization.

Pile Sort Terms:

Freelist terms		Added Terms
• Statistics	• Current news	• Keyword Search
• Data	• Mortality	• Eligibility
• Services	• Programs	• Breakouts
• OPH contacts	• Emergency preparedness	• Fee Schedule
• External links	• Issue contacts	• Health Unit Sites
• Issues	• Morbidity	• HP 2000/2010
• Demographics		• Reporting
• Organization chart		• Publications
• Clinical guidelines		• Health Alerts
• Click-able map		• Local Data

Respondents sorted note cards with the terms written on them into piles according to what they would expect to find on the Office of Public Health web site. Respondents were then asked to name each of the piles and talk about why they grouped the cards into the piles they did. The average number of pile names given was 6.727 per respondent. This should approximate the number of buttons on the home page navigation bar.

Names	Percent who mentioned
• Data and Statistics	82%
• Keyword Search	73%
• OPH Services	64%
• External Links	55%
• Publications	36%
• Programs	36%
• News or Alerts	36%
• OPH Contacts	27%
• Current News	18%
• Reference Materials	18%
• Emergency Preparedness	18%
• Current Issues	18%
• Organizational Structure	18%
• Geographic Information	18%

In total, 31 names were given; however the most frequently listed should be used as the names on the navigation bar. The other terms should be found on subsequent pages or to further explain what is found on a button.

Multi-Dimensional Scaling (MDS) was used on the pile sort results. This is a statistical process, which computes the physical distance separating terms based on their similarity and/or dissimilarity to each other. The result is a graphical representation of the aggregate piles respondents sorted. While interpreting the MDS graph two concepts are important: the clusters of terms and the dimensions represented by the axes.

Relationships of Terms

The clusters or grouping of terms represent terms that are related to each other in the minds of the respondents. The clustered terms, therefore, should be found on the same page or within one link of each other, depending on their proximity. The names generated by respondents will then be used to name these relationships.

Primary Relationships: Terms enclosed by red circles should be found on the same page. For example, the circle containing morbidity, mortality, local data, data and statistics should all be found on the first page after a visitor clicks on that button. According to the names above, we might name that button “Data and Statistics.”

Secondary Relationships: The green circles represent secondary relationships. In terms of the web site these are terms that should be cross-referenced to each other using links. Everything connected by a green circle should have a link to everything else in its green circle. Where there are overlapping circles, for example with outbreaks, the term(s) caught in the overlap represent the way different secondary relationships relate to each other.

Items Global to the Entire Site: The terms found in the purple circles; clickable map, keyword search, and external links, are all terms respondents had a difficult time sorting into piles. Respondents felt these items should be found throughout the entire site. For example, a clickable map could be used to represent data, but it could also be used to show where services could be found. Similarly, every topic and every issue should have links to external web sites for more information.

Dimensions Represented by Axes:

The dimensions represented on the X and Y-axis indicates how things are related linearly. It is no longer necessary to look at the clusters, here the lining up of terms along the axis is important.

- **X-Axis:** This dimension illustrates the spectrum of products of OPH. Beginning on the left with the raw numbers and statistics, to the services provided and the people who make up the agency on the right. There is a relationship based on inputs and outputs: The programs and staff inform the delivery of services which form the basis of the data, but in return the data and statistics complete the loop by informing the delivery of services, program development and staffing needs.

- **Order of x-axis spectrum:** Mortality, morbidity, local data, data, statistics, Healthy People 2000/2010, reporting, publications, demographics, outbreaks, current news, keyword search, health alerts, clickable map, emergency preparedness, clinical guidelines, issues, issue contacts, eligibility, fee schedule, services, health unit sites, external links, organizational chart, OPH contacts, programs.
- **Y-Axis:** This dimension relates to the timeliness of the terms. Things at the bottom of the scale are considered extremely timely and thus constantly changing. The terms at the top of the scale are less timely, and only change occasionally. Consumers would expect to check back with the bottom items more frequently, whereas they would not expect the items at the top to change with any frequency. Related to time, information found on the pages for outbreaks, and health alerts might change daily, or in some cases even hourly. The data and statistics and OPH contacts pages may change monthly, quarterly and yearly, and the eligibility, fee schedule and clinical guidelines pages will require updating only once in a while.
- **Order of y-axis spectrum:** Current news, issues, issue contacts, outbreaks, emergency preparedness, health alerts, external links, reporting, OPH contacts, mortality, morbidity, keyword search, publications, statistics, local data, data, organizational chart, clickable map, HP 2000/2010, health unit sites, demographics, services, clinical guidelines, programs, fee schedule, eligibility.

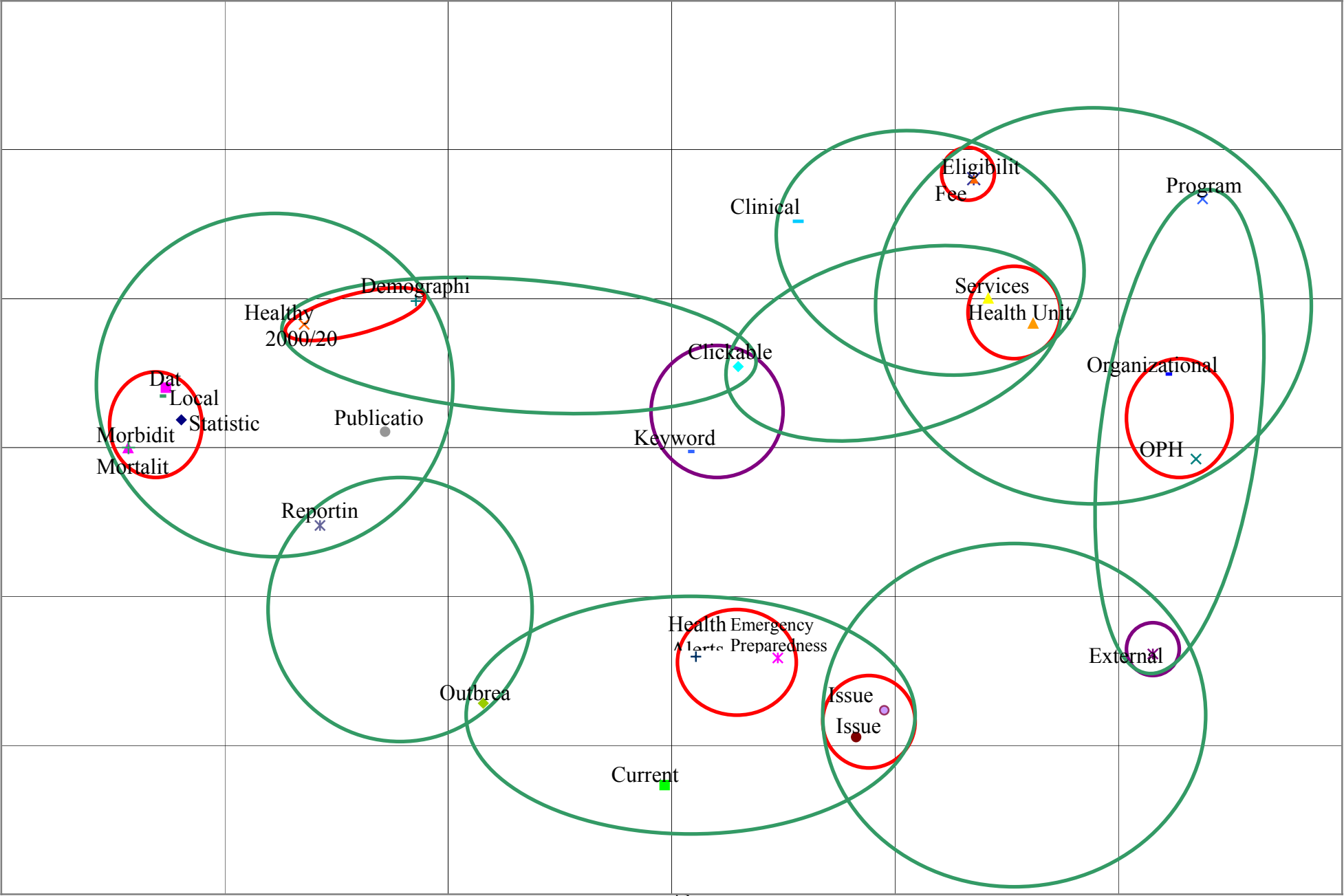
Sample Path:

Click on “Data & Statistics” and find a page with information about data, statistics, local data, morbidity and mortality. There is also a bar with related links for publications, reporting, and demographic/HP 200/2010. I am a clinician trying to submit a case of suspected West Nile Virus, so I click on the “reporting” link. I submit my report and see a link for “outbreaks” and decide maybe I should see if there are any outbreaks of West Nile Virus in my community. After checking the outbreak page more links catch my eye for Current News, Emergency Preparedness and Current Issues. I did not find any outbreaks, but I decide maybe I should click on the current issues link to learn more about West Nile Virus so I am prepared, etc. This is only an example, but it illustrates how the formative research conducted has enabled us to build a site that is logical to our consumers. This architecture also presents us with teachable moments to keep the momentum of what the visitor is looking for and maximize the opportunity to disseminate information to consumers.

- Items global to entire
- Primary relationships
- Secondary

Multi Dimensional Scaling

11 Respondents Sorted 26 Items Stress = .104



- ◆ 1
- 2
- ▲ 3
- ✕ 4
- ✕ 5
- 6
- + 7
- 8
- 9
- ◆ 10
- 11
- ▲ 12
- ✕ 13
- ✕ 14
- 15
- + 16
- 17
- ✕ 18
- ◆ 19
- ▲ 20
- ▲ 21
- ✕ 22
- ✕ 23
- 24
- + 25
- 26

Summary Results of Usability Testing:

The tasks tested

Tasks performed	Task completed by % of subjects	Number of times trying to achieve task
• Find a parish clinic phone number	90%	1.5
• Find the legislation that governs Healthy People 2000/2010	90%	1.1
• Find a fact sheet on tobacco	70%	2.8

The most problems that people encountered in the usability testing were when they were asked to find a fact sheet on tobacco. Below is a chart of the sequence of steps that people took as they attempted to execute the task. Subjects two, four and nine were not able to find the fact sheet. Using the keyword search was considered a successful find – although most people used the search as a last resort. In actual use of websites, a search does not always insure an actual find due to the number of results that are retrieved.

First attempt	Second attempt	Third attempt	Fourth attempt	Fifth attempt	Result
1. Health Alerts	Report Cards	Pull down scroll bar	Current issues	Keyword search "tobacco"	Found
2. Current issues	Programs and services	Environmental programs			Not found
3. Programs and services					Found
4. Current issues [quit]					Not found
5. Pull down scroll bar	Programs and services				Found
6. Pull down scroll bar	Data and statistics	Programs and services			Found
7. Search "tobacco"					Found
8. Data and statistics	Pull down scroll bar	Public Health Report Card	Other publications	Keyword search "tobacco"	Found
9. Current issues	Health topics A to Z	Healthy People	Health Alerts		Not found
10. Issues	Health topics A to Z	Tobacco			Found

Topics need to be linked in a circular manner. Using the example of tobacco, subjects clicked on “health alerts” and “current issues” because tobacco was an urgent subject to them. Again, in the case of tobacco, the language “data and statistics” was synonymous to “fact sheets” to some subjects in the usability test. Although that suggests more testing of the titles and choice of words, it also means that similar terms need to have links on each other’s pages.

Specific recommendations from the formative research:

Issue driven:

“...if I have a child I would want to see a flag that says, “Do you have a school-age child” click here and maybe it would have immunization information, LaCHIP, and school-based health centers and the services provided there.”

Central portal:

“I like having a left hand column with a permanent bar with the same navigation links so no matter where you go you can get out to key pages.”

Transparency:

“We need contact information outside of the agency. Lots of times we need someone at the federal level because we don’t have sufficient expertise at the local level... our regional [federal regions] should be on the web, too. It is hard for me to find that information –image how hard it is for the general public.”

“Put a link to Information centers like here in Lafayette and 232-HELP.org. They are centers of information and referral. ...one in Shreveport and in New Orleans... one is starting in Lake Charles.”

Functionality:

“When I go to a site I download it because I am afraid I can’t find it again.” [note the need for stability]

“...they [websites] look like a print publication, not a web or internet designed publication. I understand the REAL document is the print one and the web version is the best effort to throw something on the web.”

Circular and Easy:

“It is not clear to me that the home page has anything to do with Public Health. The home page is about DHH... and some of the links. What does this mean, ‘LA register’ and what about ‘Vital records’? Who knows what vital records means?”

“At the vital stats page there is that stupid confidentiality thing... it says that you need a network pass word to get in and you don’t.”

“...list the positions, not the names so that you don’t have to update it so often.”

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